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ABSTRACT

Staff Issue Papers for the Secretary of State's Advisory Committee on the 1972 United Nations Conference on the Human Environment, Stockholm, Sweden, are summarized in this compendium. Papers developed by the various sub-committees are included for: (1) institutional arrangements; (2) development and the environment; (3) human settlements; (4) educational, social, and cultural aspects of environmental problems; (5) control of pollutants and muisances of broad international significance; and (6) environmental aspects of natural resources management. The reports represent an effort to suggest the scope and depth of discussions anticipated at the Conference. Topical areas and major issues are reviewed to provide insight for developing and implementing action recommendations. (BL)

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Secretary of State's Advisory Committee
on the 1972 United Nations Conference
on the Human Environment

Staff Issue Paper on Institutional Arrangements

The following is a summary outline of the broad issues involved in organizational arrangements for the post-Stockholm period. A series of questions is appended to the outline.

I

Preparations for the Stockholm Conference have proceeded on the assumption that form follows function, i.e., first decide what must and can be done and then shape institutions to do it. The major possible functions which an international environmental unit might be designed to carry out are:

- Stimulation and co-ordination of environmental activity
  - -of U.N. agencies
  - -of nations
  - -of inter- and non-governmental organizations
  - -of regional groups (e.g. economic commissions and new environmental bodies)
  - -through policy planning
  - -through funding
  - -through negotiated agreements
  - -through identification of needs
  - -by focussing attention on problems and possible solutions
- Knowledge acquisition and assessment
  - -by use of ad hoc groups of experts composed of both U.N. and non-governmental personnel (as has been done in conference preparation)
  - -by supporting at the national level attempts to bridge the gap between science-technology and economics-sociology-politics
  - -by support of national actions in the fields of technical co-operation, education and training, and public information

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-by evaluation and forecasting through support of research, an international information exchange (using the data bank at Geneva), location of monitoring needs, and co-ordination of monitoring activity

- - Dispute prevention and settlement
  -through advisory and good offices
- - Environmental quality management
  -by goal setting
  -by consultation on national actions with potential environmental consequences
  -by international agreement

II

If these are the possible tasks for an international environmental unit, then the general institutional alternatives for carrying them out are:

- - An intergovernmental body in the U.N.
  Such a body would either be a subsidiary of the Economic and Social Council (ECOSOC) or of the General Assembly (GA). The former might provide flexibility; the latter more prestige. A compromise would be to create a new unit as a subsidiary of the GA but reporting to the GA through ECOSOC. Its composition might be patterned on the precedent of the 27-member Preparatory Committee.
- - A Secretariat
  The Secretariat would service the inter-governmental unit. It could be a department of ECOSOC or a separate part of the U.N. Secretariat. The latter would provide both prestige and flexibility. The Secretariat would administer funds, implement actions, co-ordinate efforts, contract for studies, highlight issues, etc.
- - Funding
  A central, voluntary environmental fund would be established for new programs, special research, and"seeding". Operations costs (salaries, administration, etc.) could come from this voluntary fund or from the regular U.N. budget. Additional costs of incorporating environmental emphases in development would not be paid from this fund but would come from other sources (included as part of original capital outlay; World Bank; regional development banks; etc.) The fund could be

administered by the inter-governmental body, by the Secretariat or by the Secretariat under the supervision of the inter-governmental body.

- - Marine pollution
This is a special problem. Perhaps, in the future, there might be an Oceans Authority. Now there might be monitoring and research and co-ordination with other activities. Whatever is done must take account of the 1973 Law of the Sea Conference.

III

Some of the principal questions at stake are:

- - There seems to be little realistic chance that Stockholm would propose any type of international environmental institution outside the U.N. (because of the developing countries and because this will be a U.N. conference). But should an extra-U.N. organization be considered further (for substantive as well as strategic reasons)?
- - Assuming that the international environmental unit is kept within the U.N., where should it be placed in the administrative structure? Discussion has focussed on a subsidiary of ECOSOC or the General Assembly. But could there be a new agency, an option earlier rejected? A special commission?
- - Where should the Administrator/Secretariat (the officer and staff to service the intergovernmental body) be placed administratively? Regardless of where the intergovernmental body is placed, what position would provide the Administrator with the most freedom and greatest potential for action? Should he not be within the U.N. Secretariat instead of in an ECOSOC department?
- - If there is to be a body, in addition to the intergovernmental unit, which will co-ordinate the environmental activities of the various U.N. agencies, what and where should it be? A new body? An arm of the Administrative Co-ordinating Committee (ACC)? Should it be chaired by the Administrator? By the Secretary-General of the U.N.?
- - How permanent should any organization be which issues from Stockholm? Should it be limited in time by a fixed fund cut-off date? By another Stockholm-type conference in 2-5 years? By allowing it to last as long as there appears to be interest?

- - Could there be too much co-ordination? Is the good of the environment better served by an uncoordinated diversity of governmental and non-governmental activity?
- - Should the operations costs of the intergovernmental body and secretariat come exclusively from the voluntary fund? Would smaller nations feel they had a stake, howsoever small, in the environmental body if administrative funds came from the regular U.N. budget? Or is the U.N. budget now so limited that it could bear no new expenses?
- - Consideration of a World Environmental Institute has dropped into the background. Should it be raised anew? What is the interest of the scientific community? Could there be regional institutes? Instead of a World Institute, could there be a research institute (political, scientific, etc.) to evaluate and report on the changing state of the environment?
- - Should there be some international equivalent to impact statements? Required of U.N. agencies? Solicited from governments? The idea of "impact statements" has not figured in current debate about post-Stockholm arrangements; it was raised earlier but receded into the background.
- - Instead of receiving impact statements, should an international unit offer environmental check-lists (e.g. a "dam list" to be consulted before building a dam)?
- - How can regional (bi- and multi-national) activity be most fruitfully encouraged? What responsibility rests with regional groups and what with an international body?
- - What should be the authority of an international unit? How will it be institutionally limited? What should its authority not be?

Milner Ball
Director
Subcommittee on
Institutional Arrangements

Enclosure: U.N. Document: International Organizational Implications of Action Proposals.

February 18, 1972

Secretary of State's Advisory Committee
on the 1972 United Nations Conference
on the Human Environment

Staff Issue Paper on Development and the Environment

As preparations began for the United Nations Conference on the Human Environment, it became immediately apparent that participation at the Conference would be limited to the industrialized nations unless certain fears of the developing world were rapidly dispelled. Those fears centered around their contention that environmental concern was an industrialized hang-up which inevitably would retard the economic growth of the developing countries if such concern were translated into development costs. The developing world visualized the industrialized nations negotiating strict international agreements which would result in insurmountable trade disadvantages for them in the market place as well as seemingly unbearable development costs. They threatened a boycott of the Conference and consequently threatened any chance of success that the Conference might have had. But that was roughly a year ago and much has changed since then.

Maurice Strong, the Conference Secretary General, quickly realized the magnitude of the problem and acted accordingly to dispell the fears by organizing a panel of international economic experts representing developed and developing nations of the world. That panel met last June for two weeks in Fournex, Switzerland, and produced the much acclaimed Fournex Report. That report listed in precise terms the economic risks involved with the integration of environmental quality with development processes and made recommendations on how the resulting economic costs might be handled. That document was to serve as the bases for four regional seminars in Africa, Asia, Latin America, and the Middle East on Development and the Environment also sponsored by the U. N. Conference Secretariat to allow the developing world to express their views, not only on the Fournex Report but also on the types of environmental problems facing their respective countries.

The result of those meetings was a unanimous stamp of approval for the Fournex Report and its expression of the problem.

With this background in mind, we might examine some of the questions raised by the Fournex Report.

(1) Is it possible for the developing nations of the world to incorporate environmental concern into development processes without retarding economic growth?

(2) Should the developing world bear the full costs of complying with minimum environmental standards if such costs would mean a reduction in the expenditures for desperately needed health care facilities, etc.?

(3) Should the United States pay a portion of such costs through aid programs, favored nation trade agreements, or other means?

(4) Should the United States require exports of the developing world to conform with U. S. environmental guidelines if such exports are intended for sale in U. S. markets?

(5) Should American industry comply with U. S. statutory guidelines in locating abroad?

(6) Should American industry be allowed to seek pollution havens in developing countries where environmental guidelines are nonexistent?

(7) Should the United States recommend that minimum environmental standards be set by the developing nations so as to discourage the indiscriminate importation by those nations of polluting industries?

(8) What initiatives should the United States take to incorporate environmental concern into foreign assistance programs?

(9) Should the United States specify environmental conditions necessary for obtaining such aid programs or projects?

(10) What broader implications are involved with the integration of environmental quality and economic development, i.e., massive dislocation of people producing social and political considerations?

(11) What role does population growth play in the integration of the two processes?

(12) What effect would the rapid introduction of western technology have on the culture of the developing nations ... particularly, pollution abatement technology?

(13) Do developing countries really control their own rate of growth or are they dependent upon the assistance of the industrialized world?

(14) Is the gap between the developing and developed world widening, remaining roughly the same, or shrinking?

(15) Does the developed world have a vested interest in retarding the economic growth and development of the world's developing countries?

February 18, 1972

Secretary of State's Advisory Committee
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Staff Issue Paper on Human Settlements

I. Introduction

The basic theme of the Human Settlements agenda area at the Stockholm Conference is expected to be the need for the establishment of "comprehensive environmental development" (CED) approaches by all levels of government.. Such approaches are necessary because of the existence of two major factors: (1) The demand for new shelters caused by the increasing population and internal migration to urban areas; and (2) the human need to place the shelters in functioning communities where there are the opportunities for work, human dignity and privacy. The CED approach, which aims at the establishment of minimum acceptable environmental conditions, depends upon a horizontal interaction between factors such as population, housing, health, education, etc. and a vertical interaction between planning and implementation.

The paper then presents the various topical areas, combined with repeated pleas for the corrective response - a comprehensive planning/implementation system that will lead to a more human environment.

II. Need for Action

A. Crisis of Human Settlements

The statement proceeds to a description of the present crisis by first defining "human settlements" as man's territorial habitat, i.e., the places where he lives, works, raises a family and seeks his biological, social, spiritual and intellectual well-being. Because of our failure of knowledge about environmental effects, or our indifference to them or even our inability to take corrective measures we have produced the present crisis. It is characterized by settlements and networks of settlements featuring inefficient resource utilization, overconcentration of

structures, poor land use, high development cost and unequal distribution of both the costs and benefits of the economic and social factors. Human settlers are forced to endure pollution, congestion, noise, waste removal problems and shortages of water and energy.

These problems can be dealt with only by balancing the social and economic aims of development. The measuring standards ought to be those necessary for the establishment of "minimum environmental conditions": shelter, employment, biological needs and, to a lesser extent, social and cultural needs.

B. The Special Problems of Less Industrialized Countries

Contrary to common belief, environmental problems are much more severe in the less industrialized countries because it is there that not only the needs for development are greatest but also the costs of environmental degradation are most severe. Moreover the lack of financial resources, poor organizational framework and the need for basic social changes (e.g. income redistribution) make the process of "comprehensive environmental development" all the more difficult. Such countries must attempt the balance of pressures for rapid development with the concommitant total environmental problems caused by unplanned development.

III. Key Aspects of the Settlements Problem

A. Population Growth and Distribution

In a listing of the specific problems for settlements the highest priority must go to the explosive growth of the world's population and the even more uncontrollable projections for the future. While the growth alone causes great problems for a suitable environmental development they are greatly exacerbated by the universal trend toward urbanization. Larger and larger settlements on less and less of the surface available are multiplying the causes and effects of environmental degradation. A serious effort to retard both the growth and the constant migration to the large cities is an absolute necessity.

In four distinct areas the problems of growth and urbanization are clearly present. Uncontrolled growth in the urban settlements, where the greatest growth has

centered, has resulted in great human misery and environmental degradation. The centers of the cities, once the locus of a dynamic mix of the parts of human life, have become the centers of the worst pollution, the greatest noise, the ugliest construction. However, even more horrendous conditions for human existence, where the barest of essentials are present, exist in the temporary or transitional urban settlements where new, poor immigrants are forced to spend their lives. Finally, the draining of people and physical resources together with few developmental opportunities has left behind, in the world of rising expectation, the rural areas.

The one single answer to these conditions is the need for comprehensive planning that looks forward to patterns of controlled growth and development. Land use policies that rely upon both controls and incentives to control growth of the cities and to encourage the development of new growth poles in the rural areas are the suggested method. The emphasis is on a unified approach leading to a decentralized development in order to lessen the movement from the rural areas to the existing cities.

B. Other Factors

In confronting problems of human settlements we must consider a number of factors other than the population. Industry has an enormous impact because of two reasons: (1) often by its very processes it produces environmental problems, e.g. use of resources and subsequent pollution; and (2) often it attracts people toward the large, crowded, overconcentrated centers and disrupts the social/cultural life of the nation. The answer is not to fight industrialization but rather to submit it to the planning process; one desirable approach is to use industry as the basis for a new town or new settlements as a growth pole.

Housing, the single most important environmental element, is also the area of greatest need. While there is a tremendous need for adequate shelter there is also a growing polarization between the location and quality of housing available to different groups of people. The poorest housed are also those who are provided with the poorest environmental services so that the problems are worsened. The suggested solution is the establishment and the implementation of national housing policies as a high priority.

Similarly in the area of transportation the lack of priority and poor planning has produced a true crisis for the movement of goods, people and ideas (communication) which is the key to human settlements. While public transit is often inflexible and inadequate the true villain, in industrialized countries, is the automobile which, by its noise, pollution and sheer physical presence, has driven people away from the streets, the sidewalks, and the squares. It is often the leading factor in the destruction of not only the physical but the spiritual health of the city. Other modern transportation vehicles, airplanes and ships, also contribute heavily to environmental degradation. Once again the answer is a comprehensive environmental development plan that considers transportation at the earliest stages.

In the area of water the world community increasingly shares a two-fold problem: while an adequate supply of fresh water is an absolute life necessity there is an increasing shortage of such supplies and a growing pollution of those that remain. In addition, the disposal of waste, solid and liquid, remains the most perplexing (and ironic) of modern problems. Regulation and research are the twin solutions proposed.

The construction industry, selected because of its impact on the physical environment, contributes to the present crisis in two ways. First, its process is one of great noise, consumption of resources and pollution of the ground and air, second, its products are often not conducive to an environmentally sound settlement. The paper contains the suggestion of movement toward the use of both local materials and labor intensive methods.

Needless to say, the report touches on the problems of physical and mental well-being created by our present human settlements. Evidence mounts daily as to the detrimental physical and psychological effects of such dysfunctional factors as pollution, overcrowding, poor sanitation, noise, ugliness, the lack of recreational space and the absence of communal feelings. More study of the cause/effect relationships together with the development of better working conditions and the provision of recreational/cultural facilities, especially for children, is suggested.

Finally, the major factor next to war in the crisis of human settlements is the natural disasters such as floods,

earth quakes, volcanic eruptions, typhoons, etc. These occur with greatest regularity and intensity in the "disaster prone arc" which cuts through most of Asia, part of Africa and Latin America - the less industrialized parts of the world. In an Appendix to the statement there are a series of recommendations for action to reduce the damaging impact of these disasters. Basically they call for international action in forecasting, in prevention and in relief work.

IV. The Means for Action

Having identified the major elements of the "crisis" the report discusses how change can be effected. The sine qua non of the entire process is, not surprisingly, overall comprehensive interdisciplinary planning combined in a "dynamic relationship" with implementation. For the first time in the statement reference is made to local level planning which can be conducted in many ways including advocate planning and responsive planning (solution hypotheses are present to interested groups from whom a consensus develops).

To buttress the planning/implementation process we are encouraged to develop the necessary legislation and organization arrangement. A central body at the national level that makes policy, coordinates and promotes decisions is to be matched by groups on the regional and local levels that will be the administrator and executors of policy. Finally, research and training on interdisciplinary problems and a massive campaign to educate and involve the public are recommended.

V. Recommendation for Action

In this concluding section there is a review of the steps recommended at both the national and international levels. At the national level the order is as follows:

(1) adoption of comprehensive environmental development approach;
(2) legislation and administration changes;
(3) establish national policy on population growth and distribution
(4) set target dates for water supply improvement;
(5) allocate greater resources for housing;

(6) establish regional and sub-regional growth poles;
(7) development of appropriate mass media channels;
(8) adoption and implementation of land use policy;
(9) provision of educational and recreational facilities; and
(10) mobilize public support and participation.

On the international level the guide is to support work on the national level and to deal with those problems that cross the boundaries. More specifically the ideas are:

(1) ask all development assistance agencies to set a high priority on the problems of human settlements;
(2) establish a U.N. based "international program for environmental improvement areas";
(3) encourage bilateral and regional consultation;
(4) establish a body in U.N. to coordinate and initiate research;
(5) encourage visits, institutes, etc. to exchange information;
(6) establish training centers;
(7) work to mitigate losses from natural disasters;
(8) have the WHO take the lead in work on the water supply; and
(9) insure that human settlements will be considered at the 1974 World Population Conference.

Critique on the Statement: An outline

1. The statement reflects a heavy bias in favor of "professional planning" as opposed to a more "organic/people based" approach.

2. There is an unexamined commitment to growth and progress as universal goals without much consideration to changing value orientations within existing cultures and of course among the different cultures.

3. There is no discussion of the idea and role of <u>community</u> as a basic human element in social life and how it relates to the processes of development.

4. The paper never really confronts, let alone defines, the issue of what is the nexus between human settlements and the environment - for some reason the helpful concept of the "ecology" is not mentioned.

5. Therefore, the statement shifts back and forth from a discussion of some physical environmental problems to general discussions of planning without delving much into either area. A more substantive discussion of the environmental area would be in order while in a discussion of planning more attention to the different goals and methods should have been attempted.

6. There is much too little discussion of the role of communication as a tool in environmentally sound settlements or of the type of research that might lead to more ecologically sound technology (e.g. new building materials).

7. There is a clear, but unexamined, view that size is bad and that crowding and noise are more severe in today's cities but is this true when compared with the ancient cities?

8. There is little discussion of new concepts of settlements that would meld the values of rural and urban or other new ideas such as the "beehive".

9. The paper deals with generalities to an extreme and thereby misses the opportunity to examine new ideas, concepts, and theories.

Robert E. Agus
Director
Subcommittee on
Human Settlements

February 18, 1972

Secretary of State's Advisory Committee
on the 1972 United Nations Conference
on the Human Environment

Staff Issue Paper on the Educational,
Social and Cultural Aspects of Environmental Problems

The following is an effort to suggest the scope and depth of the discussions anticipated on the educational, social and cultural aspects of the environment at the 1972 United Nations Conference on the Human Environment. It is based on a study of various documents prepared for the Conference.

The following questions are for consideration in reviewing the summary of issues:

1. What is your evaluation of the position presented in the summary? Are there other matters which should be covered under the rubric of the educational, social and cultural aspects of the environment?

2. What is your response to the recommendations given in the last section?

3. How important do you consider the cultural changes that occur when economic development is carried out in underdeveloped areas?

4. The Subcommittee on this topic is particularly interested in responses to the recommendations on the establishment of international institutional means for making available throughout the world expanded access to the growing body of environmental knowledge; the Subcommittee is also interested in recommendations concerning the best national institutional means by which the United States could participate in such international efforts, i.e., through what already established governmental or non-governmental organizations in the United States or through what new organizations might the United States best contribute its enormous resources in environmental knowledge to

to the rest of the world. Specifically:

(a) What United Nations institutional arrangements should be established for the exchange of environmental information?

(b) Which national, governmental or non-governmental organizations should link United States efforts to such United Nations institutions?

(c) How should the United States organization be funded and who should be responsible for its operation?

(d) Should environmental knowledge be "qualitatively" stratified in some way, e.g., for application within different cultural or economic contexts?

5. Since the United States will be called upon to supply a large portion of the manpower for the training of other nationals in the environmental field, should the United States establish a national Environmental Personnel Reference Base which would list both programs and personnel, in the environmental area, in both the private and public sectors, to be used for the training of such nationals in our country and abroad?

6. Do you favor the establishment of a National Environmental Center which would conduct multi-disciplinary research, for national and international use, on the social, cultural and economic aspects of environmental issues?

7. Do you favor the establishment of a National Environmental Data Clearing House for the collection, comparison and distribution of all published research in the environmental field, both for national and international use?

If you are unable to present your views at the hearings, please forward your responses to these questions and any other recommendations you may have to:

Chauncey G. Olinger
Director, Subcommittee on the Educational, Social and Cultural Aspects of Environmental Problems
Secretary of State's Advisory Committee
Room 6807
Department of State
Washington, D. C. 20520

The summary of issues follows:

Introduction

The social, cultural and educational aspects of the problems of the environment may be the most crucial matters to be examined at the Conference on the human environment in Stockholm. Indeed, it has been argued that, for many environmental problems, the science and technology for their solution is currently available and that, for many others, solutions are available simply through the cessation of certain human activities, so that the outstanding problems are:

(a) an analysis of the social, psychological, economic, political, moral and religious assumptions that have undergirded the human activities that have led to the crisis of the environment;

(b) the development of an ethic of the environment;

(c) a carefully conceived program of education, training and public information (as well, of course, as a continuing program of research); and

(d) the mobilization of the relevant political forces to the end of achieving through governmental action an end to the conscious and unconscious policies of wasting the earth and destroying the well-being of hundreds of millions of men.

Whether or not one is willing to accept this rather thorough reduction of the problems of the environment essentially to the relevant socio-cultural questions, there can be no doubt of the central importance of these issues. The many threats of impending environmental doom and the continuing failure to deal with them with available technical equipment and processes are forcing us more and more to look

at the beliefs and attitudes of men that have led us to the present situation and at the means by which they might be changed. Perhaps this point can be put most simply by saying that we must answer the challenge which is implicit in so much of what man does today: what has posterity ever done for me?

The problems of the environment have arisen from man's growing success in dealing with the challenges which nature presents to man's survival and well-being. These problems raise fundamental questions about the restrictions men and states will be willing to place on themselves for the sake of future generations, as well as the efforts they will be willing to make to ensure that the future development of our world environment will satisfy the human aspirations for well-being, liberty, justice and beauty.

A - The Necessity for Action: The Socio-Cultural Dimensions of the Problems of the Environment

The environment, obviously, is not a simple grouping of natural conditions; it is both the imprint of the human societies which have shaped it with their beliefs, their myths and their dreams as well as the matrix from which they draw the breath of life and existence. Human societies and their environments are profoundly related to one another; the appearance at any moment of a deterioration in the quality of certain elements of the environment accentuates the correlated socio-cultural changes. When the seriousness of the deterioration reaches a certain degree, it reveals serious social and political tensions. These tensions are emergent now throughout the world.

Historically, man has struggled to master the earth for his own advantage. It is only recently, however, that the magnitude of man's efforts has begun significantly to violate nature's own organic unity and to reflect back upon man a lessened well-being. This lessened well-being is made manifest to us, in the usual case, only when we are confronted with some inconvenience such as oily beaches, the unavailability of certain seafoods or noxious air. Many, however, can remain essentially unaffected by such inconveniences while extremely serious environmental problems develop.

And environmental problems are now ubiquitous. In one form or another, they now manifest themselves throughout the world, be it overpopulation and starvation, the waste of material resources, the degradation of the land, the fouling of the oceans and the atmosphere or the eradication of cherished species of animals.

What is particularly noticeable throughout the world is that environmental problems present themselves differently according to the level of a country's economic development. In the more economically developed countries, the environmental problems concern comfort and mental health, the pollution of land and water and air, and the utilization of space. In the less developed countries, the search for well-being is characterized by more elementary aspirations: how to improve the use of biological resources to satisfy the needs for nourishment.

And these economic aspects are important in considering the future of development as it is related to the environment. It has been a preoccupation with production, immediate profitability and efficiency that has meant that the negative, secondary environmental effects have been overlooked in the developed countries. The problem for the developing countries is whether or not to follow, in their own pending development, the Western models of economic growth which, while bringing considerable material improvement, have also brought serious social and psychological problems. The question raised here is not so much the question of limiting economic growth--economic growth will be required to assure even a minimum level of material well-being to the people of the developing nations--but rather of discovering patterns of growth which will achieve as rapid an economic development as possible consistent with a healthy environment.

But the problem is a difficult one. Nothing expresses more strikingly the crisis of the environment than the degradation that has occurred to human communities in urban agglomerations created by the demands of industrialization. Historically, industrialization has reduced, and currently continues to reduce, the need for human labor on farms and to increase the need for it in cities around the machinery of production and its organization. This agglomeration of men has profoundly uprooted traditional life patterns and local cultural values, so that it is at least plausible to consider wehther the gains in material comfort and convenience, in health, and in individual autonomy may not have been balanced by an increasing sense of isolation, anomie, crowding and standardization of life--in short, balanced by the "cultural aggressions" implicit in the whole system of industrialization.

Indeed, a kind of quasi-idolatry of technology and industrialization has allowed men to develop materially without adequate consideration of the immediate and deferred, secondary effects of technical and industrial processes. This tendency in the West has developed under the influence of Judeo-Christian religious convictions, according to which God created man in his own image and gave him the earth to subdue. In this view, man stands, in a significant sense, above nature and science becomes the means for the domination of nature.

This approach to nature must be contrasted with that of certain societies where men have developed a view of the world in which they coexist in a spirit of equilibrium with nature, and, in some societies, protect and venerate trees, streams and animals as reincarnations of their ancestors. We are thus called to a thorough reexamination of the assumptions upon which we in the West, for some time, have relied as the basis for our use and exploitation of nature.

Simultaneous with this examination of the socio-cultural assumptions which have led to the environmental crisis, there must be a consideration of authoritative structures at all levels to the end of encouraging, through these structures, the choice of environmentally sound values that reflect the general interest and not simply that of special concerns.

Finally, underlying the search for a satisfying environment are such drives as the search for security, physical as well as psychic, the aspiration towards an environment rich with familiar symbolic meaning, a search, by turns, for intimacy, solitude and community, and the avoidance of environmental "aggressions" against human well-being, such as noise pollution, crowding and ugliness or "aesthetic pollution." To achieve these goals in the modern world with an environmentally sound perspective raises the possibility of fundamental social and cultural changes, indeed, raises the possibility of a redefinition of the work of civilization proper to each country.

B - <u>What We Must Do</u>

But we must do more than simply begin the analysis, from an environmental point of view, of our socio-cultural assumptions and attitudes; we must outline the range of things that must be done to improve the environment.

On a planetary level, we must preserve the biosphere from catastrophic modification. We must restore local balances in the biosphere that have been destroyed. Pollution of the oceans and atmosphere and the poor management of natural resources must cease. Science and technology, whatever damage their thoughtless use may have occasioned in the past, must be used to restore and improve the environment.

But the prevention of total ecological disaster is not enough. We must continuously seek to improve the quality of life. We must further the struggle against death and disease as well as the development of hygiene to check the propogation of pathogenic agents. Likewise, physical-chemical pollution of food, water and the atmosphere must be halted.

More generally, we must promote total human development. Concern for man's physical, biological and psychological integrity implies the elimination of specific harmful features of the environment, such as excessive noise, vibration, crowding, etc. Further, full human development implies an environment which maintains a human scale, open space, coherent architectural forms and a meaningful urban landscape.

Although constraints on activities which harm the environment will, in a sense limit our freedom, on a deeper level, a healthy environment will increase our freedom to develop fully our potentialities for meaningful and constructive self-realization. Further, the creation of beauty and cultural value in the environment can awaken sensitivity to these values and increase a creative participation in life.

And, although many factors of modern life work to rob the individual of a sense of responsibility about the conditions which shape his life, still we must encourage men to assume responsibility and to exercise their freedoms to protect the environment. We share this responsibility for the patrimony of future generations with all who now share existence on "spaceship earth."

The achievement of a healthy and satisfying environment is linked to the achievement of a greater social justice, of a lessened inequality among men and nations, and to the guarantee that every man's dignity will be taken into account, that every man will enjoy a freedom, an autonomy and a constructive participation in life within a milieu which supports his highest aspirations. This achievement, from an environmental perspective, presupposes new rights for enjoyment

along with corresponding duties toward others and towards a community enlarged to the entire globe--rights and duties of which the Declaration on the Human Environment could be the international charter.

Finally, the achievement of a fulfilling human environment will require the development of an ethic of the environment, or rather, perhaps, the reformulation of certain aspects of traditional Western ethics in the light of what we now know of the dangers of uncontrolled exploitation of our physical environment, so that we may maintain the traditional values of freedom, dignity, diversity and self-realization.

C - The General Means of Action

As one looks at the wide spectrum of actions that will be required to deal with the crisis of the environment, those in the educational, social and cultural fields appear as fundamental to long-term success. Just as significant physical actions taken in the environment "reverberate" throughout the affected physical realm as well as in the lives of the men living within that realm, so actions, which are essentially socio-cultural, effect not simply the spiritual and mental lives of men, but also ultimately produce physical ramifications. This is to say, actions taken in the socio-cultural areas cannot be viewed as having only intellectual and spiritual consequences, but physical consequences too: thus, to improve environmental education is inevitably to affect the ways in which those educated will treat the environment in practice.

And, if it is the case that actions carried out in the socio-cultural realm thereby enter the complex interrelatedness of the total environment, nothing is a stronger argument for the view that the content of educational and informational efforts in the environmental area should itself be designed to reflect the complex interrelatedness both of nature alone and of man and nature in communion one with another. It follows, then, that research, educational and informational efforts in the environmental field must be strongly interdisciplinary efforts.

We can deal here only with several of the most general possibilities of action in the socio-cultural field--increasing environmental knowledge, environmental education, programs of environmental information and the political and institutional implications of concern for the environment.

In the area of increasing human knowledge and awareness of the environmental context, what appears to be required is an assembly and comparison of the research thus far performed throughout the world on both the physical and the social aspects of man's interaction with his environment to the end of developing an initial and adequate balance sheet of the total environmental situation and the establishment of ongoing and expanded research in both areas, so that a continuing social diagnosis of the environment will be available as a guide for action.

As we look for a principle of environmental education, we discover that, under one isolated subject matter or another, various aspects of the environment have been taught and studied for a long time. The vast formal structure of nature and the exquisite beauty of many of its natural forms, as well as the form and beauty of man's constructions, have in more or less separated contexts always had the attention of teachers and students. Now, however, the growing recognition of the complex systems of interrelatedness that tie natural and humanly constructed things and processes together, more and more encourages us to view environmental education in a thoroughly interdisciplinary manner. Thus, whether we are introducing children to nature for the first time or training specialists in environmental management, the determinative principle must be the achievement of a clear conception of the complex interrelatedness of man and nature.

In more specific terms, the problems of the environment confront us with the need for education and training in many areas and at many levels. Briefly, the need is for the education of researchers and teachers on the graduate and undergraduate levels, the training of broadgaged environmental decision makers and field specialists, as well as the training of operational personnel at all levels and in all areas.

And, every effort must be made to insure that the information and knowledge which is rapidly growing on the subject of the environment is made available in the appropriate form to specialists and decision makers around the world as well as to the public. For those who are already well-trained in environment matters as well as for those who seek to become so, it is of crucial importance that no current means of information exchange be neglected and that new ones be established and developed; too often experiences which are rich in instructional value, whether they be successes or

failures in the environmental field, remain unrecognized, on the one hand, depriving some of the sources of inspiration and, on the other hand, permitting others to make almost identical mistakes. For the public in general, both governments and private organizations must assume the responsibility for raising the level of awareness and knowledge of the dimensions of the environmental problem so that the public support will be available for sound environmental actions.

Finally, any act of management of the environment, any intervention in the relationship between man and his surrounding milieu, any judgment of the values in question and any evaluation of the quality of the environment implies decisions of a political nature. Whether certain actions are to be required, permitted or opposed, and whether by individuals, groups, corporations or governments, decisions in the environmental area concern the social and economic interests of those involved. Environmental decisions are, hence, ineluctably political and inevitably become associated with political ideologies, and, thus, whoever wishes to pursue the achievement of a sound environment must be prepared to deal with the relevant political factors. And because we are confronted with a variety of political contexts in the world, each with different political assumptions and goals, we may expect to be confronted with differing economic, social, moral and, finally, political justifications for similar actions taken with respect to the environment. In any case, those who care about the future of man must be prepared to provide the justification that is necessary within each particular system for the accomplishment of the corrective environmental action needed.

If environmental decisions are innately political, then it follows that they are, especially in democracies, the concern of both organized groups and individuals who are concerned with a good life. These groups and individuals can influence these decisions by direct pressure on political decision makers, by their purchases as well-informed consumers, by serving as monitors of threatened environmental situations and by alerting public opinion.

But, the major decisions in the environmental field are taken by states. Quite apart from decisions placing limitations on pollution, on the hunting of rare species, or encouraging population limitation, etc., states can help, in the task of providing harmonious life settings, by the construction of public monuments and buildings which are worthy cultural manifestations, by the constant encouragement of high

levels of excellence in artistic and cultural fields in all the media, and by the identification and preservation of the principal natural, aesthetic and historical wealth in the physical environment.

Whatever domain of intervention is chosen, the role of the states in the matter of the environment appears to be a determining one. But we must recognize that their actions, effected within the setting of their national jurisdictions, will assume the most varied forms in conformity with their own particular political spirit. Further, we must contemplate that there will be situations where non-state organizations can be assigned certain environmental tasks by states with great effectiveness, and that many environmental actions will require the cooperation of several states.

It is no doubt the case that environmental problems require world-wide cooperation and that solutions of these problems will lead inevitably towards a rapproachement and towards world unity which is one of the principal raisons d'etre of the United Nations. But unity cannot exclude diversity, the diversity of cultures and approaches which are sources of enrichment for all and which provide a demand for mutual understanding.

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876

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Secretary of State's Advisory Committee
on the 1972 United Nations Conference
on the Human Environment

Staff Issue Paper on Pollutants and Nuisances
of Broad International Significance

Enclosed, for your comment, is a summary of recommendations expected to be covered at Stockholm and the more obvious issues raised by these proposals. Both the recommendations and issues have been broken down under the following headings:

1) Information
   a) Research
   b) Monitoring
   c) Data Processing
   d) Technical Assistance
2) Control
   a) National
   b) Regional
   c) International
      -Assessment
      -Guidelines
      -Review

It should be stressed that the above categories represent more than convenient subheadings for grouping potential agenda items. Taken as a whole, they represent a conceptual framework that may produce the global consensus needed to tackle those problems that defy national and regional solutions. This framework calls for the assessment of hard scientific data (gathered by research and monitoring efforts and stored in improved information systems) to serve as a basis for the establishment of legally non-binding guidelines for pollutants of international significance. These guidelines, continually reviewed in the light of new research and control technology, are, in turn, to serve as guidance for national and regional standard setting.

Political Considerations

Utilization of legally non-binding guidelines may circumvent two of the major stumbling blocks to effective gloval environmental action. These are the rights of soverign nations and the apprehension of Third World countries, who often view the current uproar over the environment as a ploy on the part of the developed nations to deny them their chance at rapid economic growth. It is further hoped that technical assistance programs will enhance the developing nations' environmental vision, and alleviate some of their fears.

Besides these political considerations, there are several other recurring questions that arise from reviewing the Committee's recommendations:

The Little Step vs. the Big Step. This issue relates to whether the Preparatory Committee has properly struck the balance between the need for strong, quick environmental action and the political realities that surround the pursuit of such action. Do we want small, sure steps that represent psychological victories and important precedents, or strong, comprehensive plans which will entail extended discussion, and possibly less chance of success? Particularly with regard to control measures, the question is whether small steps provide a base for further action or, since treaties are difficult to amend or repeal, only serve to clutter the landscape, hindering future negotiations.

Institutional Needs

Closely related to the little vs. big step issue is the problem of whether existing international institutions are capable of the expansion and flexibility needed to halt the disintegration of the biosphere. Questions which need answering include: Is there too much fragmentation? Too many conferences? What new mechanisms are needed? Do we need independent, apolitical scientific bodies to act as advisory boards to the U.N.?

Priorities

A corollary to both the "step" and institutional issues is that of priorities. The need to list priorities not only relates to these two questions, but also to the

extensive lists of research and monitoring projects proposed by the Committee. This involves both determining those pollutants that pose the greatest threat, and providing the best mix between the state of the art in research and monitoring and available funds. A further question, closely related to the big vs. little step issue is whether global monitoring is best served by a pragmatic, "first things first" approach, or a more elaborate, holist, systems attack.

Summary of Proposals and Issues

Information

a) Research
  -Proposals
    1) There is an intense need for massive research efforts in the following areas;
       -Health and Food
       -Air and Climate
       -Terrestial Ecology
       -The Oceans
    2) Research projects in the above areas should include;
       a) Long term studies of the effects of low dosages of pollutants
       b) Effects of different levels of pollutants on the biosphere
       c) The impact of pollutants on human health, especially in regard to genetic and birth defects, cancer, and the interaction of pollutants which cause greater harm in concert than alone
       d) Broad geographical studies
       e) Follow-up studies on highly exposed populations
       f) Animal studies.
    3) There is a need to standardize measurements, and insure the compatibility of research techniques to allow for effective information exchange.
    4) The major burden of these increased research efforts is to be borne at the national level.
    5) Existing international units are to provide co-ordination by setting priorities, scheduling projects, and minimizing duplication. They should also foster collaborative research projects.
    6) Consideration should be given to establishing an international institute for tropical marine studies.

Issues

1) Is the U.N. the best organization for harmonizing international research efforts? Are there existing international scientific bodies that could do a better job?
2) Which projects deserve priority?
3) How justified is the hope of many people that increased scientific data will give us objective, apolitical solutions, allowing us to avoid the political thicket of international control measures?
4) Does increased knowledge offer solutions, or merely expose value judgements that lie at the heart of a controversy (for example, DDT)?
5) Can we wait for the results of research (particularly long-term) before taking action?
6) What legal arrangements are necessary to establish unfettered international research (and monitoring networks)?

b) Monitoring

-Proposals

1) International monitoring networks should be formed from existing national and international systems.
2) Pollutants that deserve special attention are:
   -micro-organisms
   -additives and contaminants in food and water
   -heavy metal and organo-chloric compounds (including DDT and PCB)
   -Air pollutants having a climatic impact.
3) Monitoring should include:
   -details on exposures, pathways and sources of key contaminants
   -trends
   -studies of biological indicators (organisms that give crucial information either through accumulation of pollutants or changes in population size) to give an early warning capability.
4) The institutional base for co-ordinating and implementing monitoring programs should be provided to the maximum extent possible by existing U.N. agencies.
5) The jurisdictional breakdown between national and international networks would have activities carried out on national territories the responsibility of the countries concerned, with responsibility shared in areas outside national jurisdictions, such as space and the oceans.

6) Two pressing needs are:
   -Establishment of 10 baseline and 100 regional stations to monitor global trends in atmospheric constituents and properties which may affect the climate. Regional stations should utilize less sophisticated instrumentation so that countries with modest resources may participate.
   -Establishment, through reorganization of existing U.N. and international organizations, and the beginnings of a global marine monitoring network.
7) Monitoring should assist resource management and development by providing data on the following:
   a) world forest cover
   b) environmental effects of energy use and production
   c) impact of pollutants on wildlife
   d) environmental needs of fisheries
8) Global monitoring networks by providing information to assist in the control and mitigation of natural disasters.
9) There is need for further assessment of the possibilities of remote sensing devices for use in monitoring networks.

Issues

1) Given the expense of establishing monitoring networks, and the uncertain state of the art, should the U.S. endorse full-fledged networks, or possibly several pilot projects?
2) Of all the possible monitoring networks which should have priority?
3) Does the time lag involved in developing monitoring capabilities in nations where they presently do not exist pose any problems that might hinder the success of international networks?
4) Can environmental problems wait for the development of international networks?
5) Does the comparmentalization of networks under national and international jurisdictional controls, and also by media (air, water and land) present any problems to tracing major pollutants from source to sink?
6) Would the use of monitoring networks to aid resource management involve hidden risks of exploitation and promotion on the part of data-gathering services?

7) Does the gap between man's knowledge of the oceans as a resource and as an ecosystem portend trouble for the oceans' future?
8) How crucial is the involvement of developing nations in environmental monitoring?

c) Data Processing

-Proposals

1) Information systems:
   a) There is need for improved methods for collecting, storing, and exchanging data gathered by the expanded research and monitoring activities called for above.
   b) National and regional centers are to serve as the primary storage areas.
   c) The U.N.'s task is to establish referral and information linkages that will allow for the rapid, widespread dissemination of pertinent data.
2) Social science inputs:
   a) There is need for improved studies by social scientists regarding:
   -cost-benefit analyses to improve allocation of resources, particularly where resources are scarce.
   -cost-data breakdowns of major polluters
   -studies on the feasibility of transfering successful control technology and strategies between nations.

Issues

1) What is the feasibility of such information exchange systems?
2) What are the possibilities of nations releasing accurate industrial data?
3) How much of the present environmental problem results from an inability to get information that exists?
4) A great deal of the hope placed in information systems parallels that vested in monitoring and research -- the hope of success through knowledge. How valid is this hope?
5) What potentially transferrable technology or control strategies merit most consideration?

d) Technical Assistance
-Proposals
1) Increased research and monitoring entails assistance, training, and financial support to ensure effective involvement of appropriate countries, without regard to economic development.

Issues

1) How crucial is the involvement of developing natiors in global environmental programs? What is the cost, and how should it be borne? What are the proper channels for assistance?
2) Should the assistance needed to develop national pollution abatement programs be achieved through additional aid, or a reassignment of priorities among existing aid programs? Should the aid be financial, technical, or merely educational?

Control

a) National
Propositions
1) Since most sources of pollution lie within national boundaries, and international agreement on discharge levels is unlikely, the major onus for enacting control measures must be placed on voluntary national actions.
2) Potential national control actions fall into the following categories and subtopics:
a) Mandatory Regulation
1) Mandatory standards
2) Complete prohibitions
3) Licenses or permits
4) Discharge warrants (negotiable instruments sold by a control agency to the highest bidder)
5) Land use control
6) Best practicable means
7) Liability and insurance.
b) Charges
1) Effluent charges
2) Levies on polluting products
3) Misc. boycotts, fines, moral suasion, and adverse publicity.
c) Incentives
1) Tax incentives
2) Soft credit terms and grants
3) Awards and recognition

3) The exact form a national control strategy will take should be dependent on national priorities, level of economic development, social and cultural values, institutional framework, and leadership.
4) The existence of variances in national standards should not serve as an excuse for the adoption of tariff barriers.
5) Where variances in national standards act as non-tariff barriers to world trade, the following steps may ameliorate the problem:
   a) Early warning mechanisms by the enacting nation to allow time for production changes.
   b) Establishment of consulting mechanisms between trading partners, with possible discussion of compensatory actions.

Issues

1) Are there any areas where the U.S. could show leadership by example?
2) How high a priority should the U.S. give to funding international environmental action?
3) Which of the above national control strategies shows the greatest promise? Which can be best transferred among nations? Are there any mixes of strategies that offer particular hope?
4) Do divergent national standards present a real threat to international trade? Are early warning and consulting mechanisms sufficient? Should there be mandatory international controls? For what items would international standards be better than national ones in easing non-tariff trade barriers and the flight of capital to escape national standards?

b) Regional Proposals

1) Where problems, either due to distribution of pollutants, or proximity, are beyond the capacities of one state to solve, regional solutions should be attempted.
2) Examples of successful regional responses include the 1959 Antarctic Treaty and the 1963 Test Ban Treaty.

Issues

1) Are any of the previously listed national control strategies available at the regional level?
2) Are there any pressing problems demanding regional control that could be brought up at the Stockholm Conference?

c) International

-Proposals

1) Problems that now demand international action include:
   a) Marine pollution
   b) Contamination of food and water supplies
   c) Widespread distribution of persistent heavy metal and chemical compounds
   d) Atmospheric pollution - particularly the possibility of climatic impact.
2) International control action should involve a three stage process -
   a) Assessment - This involves the evaluation of data to determine risks, pathways, and sources of pollution. There is a need for international assessment mechanisms. There is also a pressing need for assessments of organochlorine and heavy metal compounds. New chemical compounds should be assessed prior to their release into the environment.
   b) Guidelines - Legally non-binding recommendations for national and regional control measures should be promulgated for priority pollutants. There is an immediate need for working limits for water and air, and increased efforts in the current work to establish standards for foods (e.g. pesticide tolerances and additives). Primary protection standards are needed for toxic metal and organochlorine compounds. The issues of ocean exploitation and discharges of oil at sea are expected to be deferred to the upcoming IMCO and Law of the Sea Conferences in 1973.
   c) Review - International guidelines should be continually reviewed in the light of new scientific knowledge and advances in technology. Registries listing international standards and the inputs of chemical and radioactive substances into the biosphere should be established. Data on the

distribution and production of key pollutants for both the assessment and review stages should come from national sources.

This three stage control process should be the responsibility of competent international committees.

Issues

1) Does the reliance of both the assessment and review process on national production and distribution data represent a weakness in the Preparatory Committee's framework?
2) Are there elements in the assessment process, particularly the determination of risk vs. benefit, that are properly the function of political processes, and should not be left solely to committees of experts?
3) What actions can be taken other than legally non-binding guidelines?
4) Should all marine control measures be deferred to the International Maritime Consultation Organization (IMCO) and the Law of the Sea (LOS) Conferences?
5) Should we make any recommendations for the establishment of permanent marine regulatory mechanisms to insure co-ordination between the IMCO, LOS, and later conferences? Is there need for an institution that deals with all forms of marine pollution?
6) What kind of inducements, and forms of leverage are available to the U.S. in bargaining for international agreements on the environment?
7) Should the U.S. assume a leadership role, or take a lower profile and lend support to the initiatives of other nations? How crucial is it that we involve the developing world in control efforts? Would we have more success by confining our efforts to developed nations? Are there any areas where our knowledge is complete enough to initiate action for the promulgation of international control measures?

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of Broad International Significance

February 18, 1972

Secretary of State's Advisory Committee
on the 1972 United Nations Conference
on the Human Environment

Staff Issue Paper on Environmental Aspects of Natural Resources Management

This area is designated as subject area II for the Conference and is subdivided into the following topics:

--Integrated management of natural resources
--Agriculture and soils
--Forests
--Wildlife, parks and other protected areas
--Fisheries
--Water
--Mining and primary mineral processing
--Energy

Consideration of the topics at the conference will be based on the detailed action papers prepared for each subject area. The action paper presents the primary considerations for action and recommendations for both national and international action for each topic. The following is a summary of the primary considerations for each topic and the major issues we expect to be considered in developing and implementing action recommendations.

Integrated Management of Natural Resources

This establishes the parameters within the area of natural resource management within which action can be taken. The use of resources is based on the laws of supply and demand. Up until this point in the development of resources, little recognition has been given to the finite character of the resources. Thus, the economic considerations of development have been short range and not concerned with environmental factors.

The aim of development is to improve the quality of life for man. In developed nations the interest now lies in additional amenities while in developing nations the interest

lies in establishing minimum living standards. This choice of goals will affect the priorities of production as well as the distribution of cost priorities. The use of the cost-benefit concept in planning will reflect the status of the particular national interest. Therefore, it is anticipated that the developing nations will not place as high a benefit figure on environmental considerations as will the developed nations.

The present power structures and concepts of sovereignty are accepted and recognized as the only effective means of action. It should be noted, however, that participation in regional organizations like river basin commissions is recommended.

Some general issues are as follows:

1. Should tariff and non-tariff trade sanctions be used to stimulate environmental action in other nations?

2. With respect to technical and financial aid. public and private development et al., should the donor or recipient nation set environmental guidelines? Should U. S. policy be to refuse to grant a guarantee of investment without environmental action guarantees?

3. Should U. S. multinational corporations comply with U. S. standards or standards of the nation where they will operate? Should they comply with the more stringent?

4. What should U. S. policy be with respect to economic sanctions, penalties, or liabilities regarding actions with detrimental extraterritorial effects?

5. How should the U. S. participate in any international fund?

6. Will U. S. national laws and standards apply to U. S. exports, i.e., if the use of DDT is banned in the U. S., should the U. S. allow manufacture and sale to a foreign nation?

7. While recommending that nations use the cost-benefit approach in the use, development and

conservation of resources, what weighting factors should be suggested?

8. Should the objective of a self-sustaining economic unit be the goal for renewable resources management?

9. What should the U. S. position be with respect to establishing international standards dealing with the conservation of natural resources and insuring that all national action be, at a minimum, consistent with these standards?

10. What should the U. S. position be with respect to allocating the economic burden of scientific research and technology, recognizing that the primary resource lies in developed nations while the natural resources and problem areas often lie in developing nations?

11. Where development is sought by a nation with U. S. assistance, who should pay any added costs for environmental protection actions?

12. How should the interests of developing and developed nations be reconciled with regard to use of synthetics and recycling?

13. Where the U. S. can afford implementation of technological advance, but a developing nation says it cannot, what should U. S. action be?

14. What should be the U. S. position on developing natural resource processing at the site of origin, as opposed to transporting raw materials to developed nations?

15. If the international community adopts the position of "keep clean as you go," who will pay for this in a developing country?

16. How should world assessments and minimum environmental needs and standards be developed?

17. How should maximum production be balanced with minimum damage to the environment and consistent with cleaning up past abuses?

18. What should be national and international responsibilities towards conservation of natural resources for future generations?

19. How should the international community decide what should be conserved? Who should make the selections? And once choices are made, who should be responsible for conservation and any costs resulting from conservation actions?

Agriculture and Soils

In this area we are dealing with a renewable resource which is the primary basis for the world's food production, as well as other agricultural products (e.g. paper). Primary considerations are to maximize production while minimizing environmental damage and to improve both rural living standards and product quality. A significant technological gap exists between the developed nations and the developing nations, especially in tropical areas. Efficient production could lead to economically self-sustaining agricultural units which contribute significantly to bearing the costs of environmental actions. The major issues involve:

1. Achieving maximum production with minimum environmental damage often requires actions beyond the economic or technological capability of the individual farmer. How should the economic burdens of environmental actions among the individual farmer, agro-industries, and government be distributed?

2. In considering how any given land area will be used, should recognition be given to the inherent limitation of the area and utilization only to maximize natural potential, or, should the area be significantly altered through some type of development project (e.g. irrigation, fertilizers, industry)?

3. Long term productivity and environmental considerations are not always consistent with short term production and economic goals; especially with respect to crop selection, fertilizers, pesticides, etc. How can the international community reconcile long and short range goals?

4. The use and development of agro-chemicals (e.g., pesticides, fertilizers, drugs and antibiotics) must be reconciled with respect to both long and short-range objectives. Recognizing that

technological advancements will come from developed nations where the unit cost factor may not be as significant as in a developing country, how should existing knowledge and chemicals (e.g., DDT) be utilized in developing nations, and which nation's standards of use should be applied?

5. What actions should be taken by the international community concerning the treatment and use of agricultural wastes and the possible recycling of agricultural products and wastes?

6. What action can be taken to resolve the problem of pollution from the production of agricultural products (e.g., paper and pulp production)? How is the cost burden to be allocated?

7. What should the guidelines be in connection with evaluating natural and synthetic products, especially with respect to conservation, balance of trade, and development?

Forests

Forests are a renewable agricultural resource although basically non-food producing. The primary use of forests is for the timber and wood products, in addition they provide indispensible protection of the land and other resources, contribute to the balance of the biosphere, and affect the climate. The economic burden of environmental action in connection with forests does not involve the problem encountered in the agricultural and soils area since 70% of the forests are in public ownership. Public ownership is consistent with an integrated management approach and can be most effective in dealing with the following major problems:

1. What positions can the international community take in connection with the following areas, and how can national action be reconciled with these positions?

    a. making forests self-sustaining economic units through a multiple use approach.

    b. land use decisions, especially in reference to forest renewal versus development of cleared lands.

c. pollution control of forest industries.

d. experimentation and implementation of farming and breeding technologies and cost thereof.

e. fire, pest and disease control problems.

2. Technology, management skills, legal and institutional, are relatively well defined in developed temperate zone countries while developing tropical countries need assistance. Is it a feasible position that developed countries bear the economic burden of technological advances while developing countries bear the burden of project costs?

3. Further study of the relationship of forests to the biosphere should be made to determine whether there are minimum acceptable limits for forest cover, and if so, how can this minimum acceptable level be protected? How can national actions be coordinated on an international or regional basis?

Wildlife, Parks and Other Protected Areas

Wildlife:

Wildlife plays an integral part in any ecosystem, is a source of food and animal by-products, and is a basis for tourism and recreation. Wildlife is threatened by man's population and his occupation of land and water. It is further threatened by man's use of land and water territories which results in altered ecosystems. The major dangers come from pollution and trade exploitation. Management is primarily a national problem while conservation is of international scope, especially in connection with water and migratory species.

1. How should actions distinguish between economically self-sustaining species and wildlife?

2. What is the proper balance in land use between food needs and maintenance of natural ecosystems?

3. Can wildlife be managed as a self-sustaining resource with respect to gene pools, food, tourism and recreation, and animal products? How can long and short range goals be reconciled?

4. Whaling merits special attention with the suggestion of a 10 year moratorium. How can enforceable international agreement be reached on this topic?

Parks and other protected areas:

Protected areas, be they parks, wildlife refuges, natural areas, wilderness areas or recreation areas, are essential for the preservation of certain ecosystems as well as providing sanctuaries for basic flora and fauna gene bases. In addition, they are invaluable in relationship to the ever expanding urban populations by providing tourist, recreation, and educational areas.

1. How should these values be weighed against development of land areas for other uses?

2. Can protected areas be managed to maintain a degree of economic self-sufficiency? If not self-sustaining, who should bear the economic burden, especially with regard to developing nations?

3. What management guidelines should be developed with respect to tourism and pollution?

4. Special cooperation appears necessary for border areas, water areas, and protected areas for water and migratory species. What arrangements should be developed in this connection?

5. Recreational, natural, historical and cultural bases of mankind need to be protected for continued scientific and cultural utilization. With expertise in a developed nation and the natural resource and economic benefit in a developing nation, who should bear the economic burden? How should national and international programs, including assistance to developing nations, be balanced?

Genetic Resources

Genetic diversity is essential for survival by adaptation to environmental changes. In addition, it provides a basic tool for maximizing the efficiency of living organisms in a given environment. Some basic gene resources of the world are threatened by man and his development as certain agricultural plants, forest species, aquatic and micro-organisms, insect and animal species are faced with possible

extinction. Once this ancestry is lost it is unrecoverable.

1. Gene pools and research are scientific in orientation and are not self-sustaining resources, unless the research product is considered a commodity. The major scientific expertise and facilities existing in this area are in the temperate and developed areas while the majority of raw materials and basic gene pools are in the tropical and developing areas. How can agreement on materials and information exchange be reached and how should the economic burdens be allocated?

2. Practically an infinite number of gene species exist and selection must be made because all of them cannot be preserved. Noting that the selection priority will be based on usefulness for:

    a. breeding improved crops for production

    b. breeding species resistant to disease and pests

    c. developing insects for pest and disease control

    d. improving productivity for plants and animals.

    Who should make the selection and bear the cost of selection and how should this be done?

3. During the selection stage, conservation is essential so that no basic gene pools are lost. How should this be balanced against development and if conservation entails a cost by limiting development, who should pay?

Fisheries

Provide a renewable primary food resource and play an integral part of any water ecosystem. They are threatened by pollution, overfishing, marginal land development, and off shore development. Water and its inhabitants are not restricted to national territory. Most water resources are interrelated and are subject to multinational actions. There are many existing multinational organizations as well

as fishing and trade agreements. Due to the extraterritorial nature of fisheries and water, agreement and enforcement of national actions is difficult. It should also be noted that, although an international resource, technology for exploitation lies mainly in developed countries.

1. In what areas and how can multinational agreements be reached and enforced?

2. How should international resources be divided?

3. How should estuarine areas in which many economic species reproduced be treated by a nation?

4. How should actions on the following major areas develop?

    a. pollutants and wastes, with any extra-territorial effects.

    b. expanded research in fish farming and transplantation without damaging natural ecosystems.

    c. guidelines for development projects which will effect water flows and water quality.

    d. research into aquaculture and recycling and conservation of beneficial wastes.

    e. treatment of coastal areas, wetlands, and offshore territorial lands and waters.

5. Should the international community allocate the fisheries resource? If so, how can fisheries be managed and how should economic responsibility be allocated? Can fisheries be managed as a self-sustaining resource on an international basis?

Water

Water is a replenishable though finite resource which is essential to the environment. Provision of the requisite amount of water at the right time in the right place in the right quality is the primary objective. Extraterritorial waters such as seas, oceans, and certain rivers may be distinguished from purely inland waters. The relationship of sovereign rights as applicable to ocean waters must be considered. Legal considerations, management, and enforce-

ment over actions in international or multi-national waters are more complicated.

1. In regard to extraterritorial waters, what agreements and actions should be taken with respect to:

    a. water resource allocation between uses,

    b. water pollution, including waste control, and

    c. effect of development and other land uses on water quantity and quality, especially in coastal and off shore projects.

2. With respect to multinational funding as well as international agreements, should participation be on an equal basis although other participants fail to comply with our national standards?

3. What is the national responsibility for insuring the water quality of water flowing into another jurisdiction?

4. How should the economic burden, which may be beyond the individual or national economic capacity, be allocated?

5. How can the real cost of water be established?

Mining and Primary Mineral Processing

Minerals are a non-renewable resource essential to maintaining current production and increasing development. While depleting the natural resource, the mining of the raw material generally only requires temporary occupation of the land. This leaves the way open to directed renewal of the land area to a natural state, although perhaps altered from the original state. Conflicting with the renewal approach is the fact that mineral mining and processing tend to be the first stages of urban development which means permanent occupation of the land and ensuing problems like pollution. While almost wholly within national boundaries, coastal, off-shore and deep sea processing involve multinational issues.

1. What position should be taken with regard to mineral importation from developing nations,

recognizing that the raw product is often an essential element in the balance of trade? In addition, who should bear the cost of site restoration?

2. What international actions can be taken to insure that mining practices do not harm the global environment?

3. What emphasis should be placed on the balance of trade in an analysis of natural versus synthetic products and in connection with recycling?

4. Should international guidelines for integrated management be established in regard to the problems of sequential land use and pollution in the mining, processing, and transportation phases of international mineral development?

5. Should international standards be established and can costs be allocated for miner's health and safety.

Energy

Contemporaneous with minerals, energy is a prerequisite for production and development. Historical development of energy resources has been from wood to coal, fuel oil, natural gas, electricity and atomic energy, with each resource significantly depleted at each stage. Energy resources at present appear finite. Conservation of finite resources non-renewable in light of increasing demand requires a multiple approach through (a) increasing efficient use and production, (b) conservation of resources and demands, and (c) exploration of new energy sources.

1. In developed nations the minimum demand would be at present levels. In developing countries production of energy is a basic source for economic growth. Should demand be limited? How can the international community balance these competing demands on the world's energy resources?

2. Should a depletion allowance concept on an international level be developed with economic proceeds channeled to research and other environmental concerns?

3. Who pays for research to explore energy recycling and how can international guidelines be established for the resulting trade ramifications?

4. How should the international community approach these major problems:

   a. pollution in production, transportation, and use of energy, especially concerning the internal combustion engine and accidents. Is an international accident liability approach warrented?

   b. how should demand and consumption be regulated, especially in developed nations and urban areas?

   c. allocation of costs resulting from both conservation of energy resources and other environmental protection?

5. Under present technology, the world's energy resources are finite. How should the international community balance long and short range objectives in the use and conservation of energy resources?

6 How should a clear independent evaluation of the energy resource status of the world be made and paid for? Should present technological limitations, which indicate that energy resources are finite, dictate our actions, or, should we assume advancing technology and either new sources or successful recycling will make energy resources infinite?

7. What is responsibility to future generations with respect to energy resources?

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